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## *A little about the USC Time and Billing System and the purpose of this document.*

he USC Time and Billing System collects timesheets from each employee and processes the data into Service Bills that are sent to USC's client companies at the end of each month. It produces reports that detail how the work was distributed by employee, job order number, company and department. The System also provides an interface for maintaining the data that supports timesheet collection and Service Bill processing.

This system is based on an earlier application built using Clarion. The Clarion System was a DOS-based, client server application that suffered from a number of problems. Principal among these was lack of Year 2000 compliance, and no ability to add new billable client companies.

The Time and Billing System is a web-based application; it is more like an Internet site than a desktop application. Although it runs only within the Unitil firewall, its interface is hosted by a web browser, Microsoft Internet Explorer. It must conform to user inputs set by web conventions, such as no support for right-click menus. Among the benefits of this web-based application is that since nothing is installed locally on the user's machine there is no persistent disk footprint and application updates are instantly available to users.

This document is not user documentation. It addresses the internals of the Time and Billing System and is intended for a technically savvy audience. This document describes how the system is built, and provides useful information for maintenance, troubleshooting, and enhancement. With this document in hand a person with the necessary skills can maintain and enhance the system.

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# Bill Processing

*The calculations that turn timesheets into Service Bills*

his describes the rules of calculation that process timesheet entries, the raw data entered monthly by each employee, into service bills sent to Unitil's client companies. These rules are extracted from the existing billing system's Clarion code and from "USC Time Billing System Narrative," a document dated March 1994.

This section describes only the bill processing calculations that creates the service bill data. Turning this data into invoices and reports is the subject of another section.

# 1  Purpose of Bill Processing

The purpose of the billing calculations is to allocate USC's total labor and overhead for the month to each of USC's client companies. These charges are divided into Direct and Indirect charges, and the associated Overhead charges. Direct charges are for work performed directly for the client. If there were only Direct charges there would be no need for Bill Processing at all since Direct charges pass directly to the invoice with no further processing. Unfortunately there are also Indirect charges which is what Bill Processing is all about. Since only Direct charges appear on Service Bills, the bulk of the work that makes up bill processing is turning Indirect time into Direct time.

Indirect Charges are any work that can't be charged directly to a client company. All work charged to SERVICE is Indirect, as are employee vacations, holidays and sick time.

This document identifies the rules that specify how each timesheet entry is made into a Direct charge. The document first describes the process of creating a client bill in general terms, and then it goes over each step in the process in sufficient detail to implement the calculations.

## 1.1 Three Phases of Bill Processing
The Clarion system performs three transformations on the raw timesheet data. The first multiples the employee's hourly rate by their hours to determine the charges for each entry. The second transformation converts service company charges into non-

service company charges. The third converts entries with Job Order numbers outside the range of 150.00 to 999.00 into entries within that Job Order range.

# 2 Bill Processing Preliminaries

Before the Bill Processing can begin, the necessary data must be marshaled in preparation. Of course, the primary data is the timesheets for the month. The Time Entry application collects timesheets from each employee.
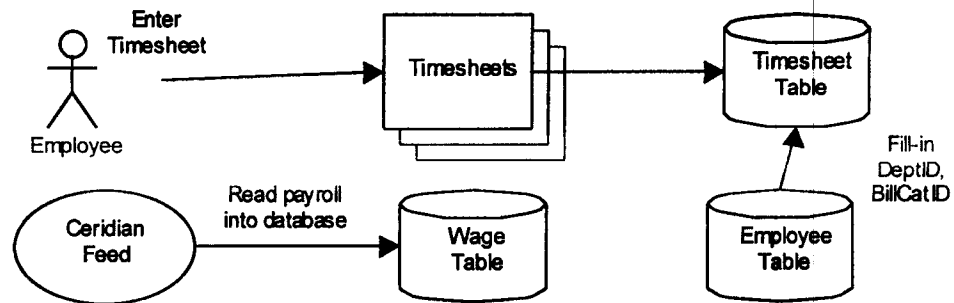


Figure 10 – Bill Processing Preliminaries

## 2.1 The Timesheet

An employee enters one or more timesheets every month. Each timesheet requires the following information to be processed to a service bill. This is the information provided by employees through the Time Entry application.

- Job Order Number – The JON describes the work that was performed.

- Company – The Company that the work was performed for.

- Employee – Who performed the work.

- Month and Year – When was the work performed.

- Straight Time hours – The straight time worked. Zero if none.

- Overtime hours – The overtime hours worked. Zero if none.

In addition, the following information is supplied from the database.

- Bill Category – A value retrieved from the employee's record in the **Employee** table and/or from the **BillCatJonRange** table.

- Department – A value retrieved from the employee's record in the **Employee** table.

- Labor Class – A value retrieved from the employee's record in the **Employee** table. Not currently used, but available for future processing.

- Base Wage – The Base Wage field is calculated as part of the bill processing.

## 2.2 Supporting Data

### 2.2.1    Wage

Wages are the total wages paid to the employee for the month. This number is read from the Ceridian payroll feed and stored in the **Wage** table.

### 2.2.2    Executive Allocators

Executive Allocators are the percentage of an executive's charges that are allocated to each client company. These percentages are taken from the **ExecAllocator** table.

### 2.2.3    Overhead Factor

The Overhead Factor is the percentage of overhead charged for the month. This amount is taken from the **MonthControl** table.

### 2.2.4    Capitalized Wage Percentages

The percentage of wages that are capitalized (for those employees whose wages are capitalized) is stored in the **Capitalization** table.

### 2.2.5    Direct Charges

Direct charges are amounts paid by the service company that get billed directly to the client company.

> 2.1    Employee expenses – Client companies are directly charged for employee expenses as they are incurred each month.

> 2.2    Any other costs that are significant in total and which would be unfairly allocated if the overhead rate mechanism were used, are directly charged to the client.

## 2.3 Definitions

### 2.3.1    Employee Rate

The Employee Rate is the charge for an hour of this employee's time. For the purpose of this system, no distinction is made between straight time and overtime, in spite of the fact that they are entered as distinct values. Straight time hours and overtime hours are totaled and the sum is used in the rate calculation. The Employee Rate is calculated by taking the employee's salary for the month and dividing it by the total number of hours that the employee worked for the month.

Employee salaries are updated as necessary each month before the Bill calculation begins. See section 2.2.1 above.

### 2.3.2    Direct and Indirect Hours

To understand how calculations are performed it is necessary to understand how charges are allocated to client companies. Most of the complexity of the billing calculation is due to the rules that allocate Indirect charges to client billing. Charges are first divided into Direct and Indirect Hours.